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10/065,836	11/25/2002	Allan Joseph Kotwicki	201-0304	9702
22844	7590	05/07/2004	EXAMINER	
FORD GLOBAL TECHNOLOGIES, LLC. SUITE 600 - PARKLANE TOWERS EAST ONE PARKLANE BLVD. DEARBORN, MI 48126			VERBITSKY, GAIL KAPLAN	
			ART UNIT	PAPER NUMBER
			2859	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/065,836		Applicant(s) KOTWICKI, ALLAN JOSEPH	
	Examiner Gail Verbitsky		Art Unit 2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 02 February 2003.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-18 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-18 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____. 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6) <input type="checkbox"/> Other: _____.
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DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. The term "relatively" in claims 6, 11-12 is a relative term which renders the claim indefinite. The term "relatively" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. In this case, if the coatings are relatively thin/ thick, as stated in the claims, then, it is not clear, relatively to what particular structure and or size.

Claims 13-17 are rejected by virtue of their dependency on claim 12.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4 are finally rejected under 35 U.S.C. 102(b) as being anticipated by JP59028633A [hereinafter JP].

JP teaches a temperature sensor/ temperature-sensing element coated with resin (matrix) of a high thermal conductivity or a mixture of the resin with a particles/

powder of alumina, etc. Since, it is very well known in the art, that alumina is a thermally conductive material, the coating comprises thermally conductive particles of alumina.

5. Claims 1-2 are finally rejected under 35 U.S.C. 102(b) as being anticipated by Nyffenegger et al. (U.S. 6592253) [hereinafter Nyggenegger].

Nyffenegger discloses in Fig. 3 a temperature sensor 18 which is a resistive temperature sensing element/ thermistor, whose outer surface is covered with a thermally conductive coating 50 being which comprises silver particles in a matrix resin.

6. Claims 12-14 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (U.S. 6419388).

Lee discloses in a front page figure a device comprising a thermistor 4 covered with an inner coating of a thermally conductive and electrically insulating (relatively low thermal diffusivity) epoxy resin 7 (point glue/ relatively thin), and a thermally conductive outer coating comprising metal (relatively high thermal diffusivity) or any other material of good thermal conductivity whose thickness is about 0.1 mm/ relatively thick (col. 5, lines 7-9).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5-6 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over JP in view of Salera.

JP discloses the device as stated above in paragraph 4.

JP does not teach the limitations of claims 5-6.

Salera discloses in Fig. 7 a device comprising a thermistor bead which is glass/ electrical insulating covered/ coated, said electrical insulating coating is relatively thin and located between the thermistor bead and the thermally conductive coating 11, as shown in Fig. 7.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the temperature sensing element, disclosed by JP with the thermistor, as taught by Salera, so as to have the thermistor bead covered with a glass, because both of them are alternate types of temperature sensing elements, which will perform the same function of measuring the temperature of interest by measurable change in their property, if one is replaced with the other.

9. Claims 7, 10 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Books et al. (U.S. 6408624) [hereinafter Brooks] in view of JP.

Books discloses in Fig. 2 an intake manifold temperature sensor/ thermistor 68 to sense the temperature of the intake air, the thermistor is positioned in the intake manifold 26.

Books does not teach the particular coatings for the temperature sensing element/ thermistor, as taught by applicant.

JP teaches a temperature sensor/ temperature-sensing element coated with resin (matrix) of a high thermal conductivity or a mixture of the resin with a particles/ powder of alumina, etc. Since alumina is known to be a thermally conductive material, the coating comprises thermally conductive particles of alumina.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was modify the temperature sensing element/ thermistor, disclosed by Books, so as to apply the thermally conductive coating, as taught by JP, so as to provide a better heat conduction from the air in the manifold to the temperature sensing element, in order to improve speed of measurements, and thus, accuracy of the device.

10. Claim 11 is finally rejected under 35 U.S.C. 103(a) as being unpatentable over Books and JP as applied to claims 7, 10 above, and further in view of Salera.

Books and JP teach the device as stated above in paragraph 9.

They do not explicitly teach a relatively thin electrical insulating coating between the thermistor and the thermally conductive coating, as stated in claim 11.

Salera discloses a device in the filed of applicant endeavor wherein, the thermistor bead is covered with glass. Since glass is known to be an electrical insulation, it is considered, that the thermistor bead is covered with the electrical insulation which is positioned between the thermistor bead and a coating.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the thermistor, disclosed by Books and JP, so as to have the thermistor bead covered with a glass, as taught by Salera, because both of them are alternate types of temperature measuring thermistors, which will perform the same function of measuring the temperature of interest by measurable change in their resistance, if one is replaced with the other.

11. Claim 18 is finally rejected under 35 U.S.C. 103(a) as being unpatentable over JP and Books as applied to claims 7, 10 above, and further in view of Kelly, Jr. et al. (U.S. 6546892) [hereinafter Kelly].

Books and JP teach the device as stated above in paragraph 9.

They do not explicitly teach a seal, as stated in claim 18.

Kelly discloses a device comprising a temperature-sensing element to be sealed to a wall of interest by a sealant 18.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Books and JP, so as to use a sealant, as taught by Kelly, to attach the temperature sensing element to the wall of interest (intake manifold), in order to provide a better attachment between the wall of interest and the temperature sensing device, so as to provide a proper contact between the surfaces and thus, more accurate temperature measurements.

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12. Claims 7-9 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over JP in view of Books et al. (U.S. 6408624) [hereinafter Brooks].

JP teaches a temperature sensor/ temperature-sensing element coated with resin (matrix) of a high thermal conductivity or a mixture of the resin with a particles/ powder of alumina, etc. Since alumina is known to be a thermally conductive material, the coating comprises thermally conductive particles of alumina.

JP does not explicitly teach to use the temperature-sensing element in an intake manifold, and the limitations of claims 8-9.

Books teaches that there is a need to measure an air temperature of the intake air using a temperature sensing element/ thermistor positioned in the intake manifold
26.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the temperature-sensing element, disclosed by JP, to sense the air temperature of the intake manifold,

Lin discloses a conductive thermosetting composition/ coating comprising a polymeric (non metal) particles/ filler (abstract) or aluminum (col. 5, line 56) particles/ filler dispersed in a plasticisol (resin matrix).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the thermally conductive coating disclosed by JP, with the thermally conductive coating, as taught by Lin, because both of them are thermally conductive materials which will perform the same function of conducting heat from an object of interest to the thermistor bead, if one is replaced with the another.

12. Claims 3 is finally rejected under 35 U.S.C. 103(a) as being unpatentable over Nyffenegger in view of Lin (U.S. 4581158).

Nyffenegger discloses the device as stated above in paragraph 4.

Nyffenegger does not explicitly state that the metal particles are aluminum.

Lin discloses a conductive thermosetting composition/ coating comprising a polymeric (non metal) particles/ filler (abstract) or aluminum (col. 5, line 56) particles/ filler dispersed in a plasticisol (resin matrix).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the thermally conductive coating disclosed by Nyffenegger, with the thermally conductive coating, as taught by Lin, because both of them are thermally conductive materials which will perform the same function of conducting heat from an object of interest to the thermistor bead, if one is replaced with the another.

13. Claim 17 is finally rejected under 35 U.S.C. 103(a) as being unpatentable over Lee.

Lee discloses the device as stated above in paragraph 6.

Lee does not explicitly teach the particular thickness of the inner coating, as stated in claim 17.

With respect to claim17: the particular thickness/ size of inner and outer coatings, i.e., 0.001 to 0.05 mm, absent any criticality, is only considered to be the optimum value of

the thickness of the inner and outer coatings disclosed by Lee that a person having ordinary skill in the art would have been able to determine using routine experimentation based among other things on the desired accuracy of the device, etc. In re Boesch, 205 USPQ 215 (CCPA 1980). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device, disclosed by Lee, so as to make the inner and outer coatings of thickness of 0.01 to 0.05 mm, so as to provide the necessary thermal conduction, electrical insulation so as to satisfy the desired accuracy of the device.

14. Claim 15 is finally rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Lin.

Lee discloses the device as stated above in paragraph 6.

Lee does not explicitly teach the particular outer coating material, as claimed by applicant.

Lin discloses a conductive thermosetting composition comprising a polymeric (non metal) particles/ filler (abstract) or aluminum (col. 5, line 56) particles/ filler dispersed in a plasticisol (resin matrix).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the thermally conductive outer coating disclosed by Lee, with the thermally conductive coating, as taught by Lin, because both of them are thermally conductive materials which will perform the same function of conducting heat from an object of interest to the thermistor bead, if one is replaced with the another.

Response to Arguments

15. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection necessitated by the present amendment.

With respect to Dotan: the arguments are now moot.

With respect to Salera: A) Applicant states that Salera teaches away from the claimed invention. This argument is not persuasive because, Salera teaches an epoxy coating 16 which impedes, acting as a thermal mass, or slows down the heat to be transferred to the metal tip of the device and thus, being an electrical insulation and thermally conductive, the coating 16 acting as a low diffusivity coating, as claimed by applicant.

B) Applicant states that there is no motivation to have metallic particles in the coating of Salera. This argument is not persuasive because, Salera teaches a heat conductive material, as well as Lin, thus, addition of the metal / non-metal heat conductive particles can change the level of heat conductivity of the coating to a desired degree. Although it appears, that Salera avoids heat loss to the housing of the device, however, in order for the device to operate properly, there should be a thermal conduction path between the thermistor bead and the tip, in order the device to operate properly. Applicant states that the metallic tip 11 is not an outer coating and has a thickness different from the claimed invention. This argument is now moot.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in the PTO-892 and not mentioned above disclose related devices and methods.

Any inquiry concerning this communication should be directed to the Examiner Verbitsky who can be reached at (703) 306-5473 Monday through Friday 8:00 to 4:00 ET.

Any inquiry of general nature should be directed to the Group Receptionist whose telephone number is (703) 308-0956.

GKV

Gail Verbitsky
Primary Patent Examiner, TC 2800



April 20, 2004